

CHAPTER 2

PROJECT DESCRIPTION

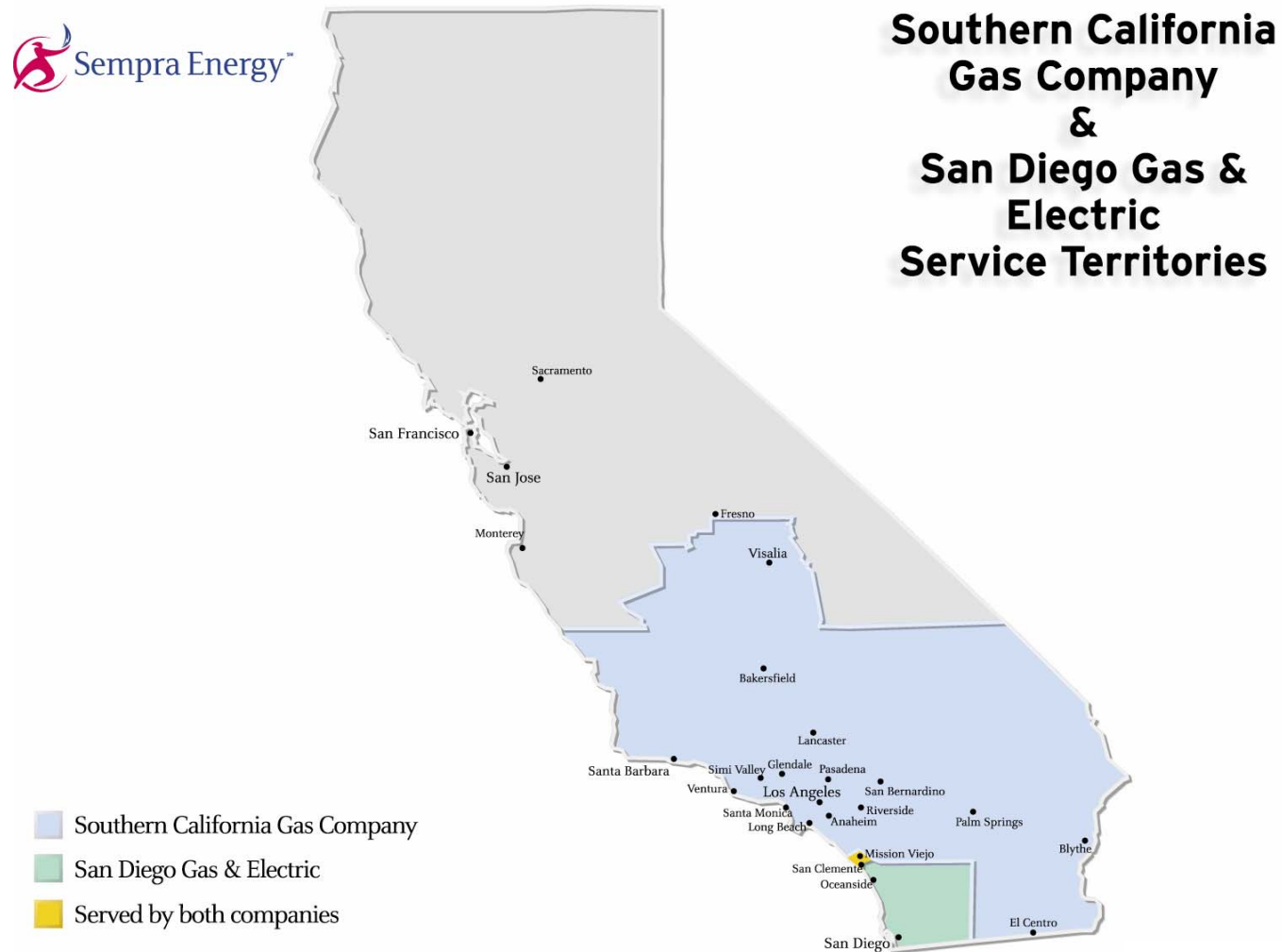
A. PROJECT LOCATION

Southern California Gas Company (“SCG”) and San Diego Gas and Electric (“SDG&E”) are seeking to implement a new service to allow them to install conduit within active gas lines. The project would be applicable to the existing pipeline infrastructure in SCG/SDG&E’s service territories in 13 southern California counties including Fresno, Imperial, Kern, Kings, Los Angeles, Orange, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara, Tulare, and Ventura, which therefore defines the project area (**Figure 2-1** and **Figure 2-2**).

“Fiber in Gas” or “FIG” technologies are particularly well-suited to highly developed, urbanized areas where existing infrastructure can be utilized to provide telecommunications carriers and cable television companies (“Carriers”) connections to end users with minimal disruption to the surrounding environment. FIG technologies greatly minimize the potential for environmental impacts, whether in an urban, suburban, or rural settings, by eliminating the need to disrupt large areas with trenches and trenching equipment. The need to use FIG technologies decreases as an area becomes less developed because the economic feasibility for a Carrier to install a communications network via more standard construction techniques increases in more rural and suburban areas where more space exists in public rights-of-way and available conduit is more prevalent. Therefore the demand for the use of FIG technology is anticipated to decrease in less developed areas. For this reason, the project area setting described throughout this environmental assessment assumes that the project would be implemented only in developed areas. “Developed areas” defined in this document implies a location where infrastructure (i.e., roads, utility rights-of-way) is existing and construction activities would occur exclusively within or adjacent to roadways (including road shoulders, landscaped road buffers, and sidewalks) that often serve as utility rights-of-way. To further explain the definition assumed for the environmental assessment, an area may be considered “developed” in suburban or rural areas as well as urban, as long as the proposed activity is located within or adjacent to existing roadways.

B. PROPOSED PROJECT

The proposed project is the request for authorization of a new tariff service allowing Carriers to place fiber optic cable in conduit placed in SCG/SDG&E’s active gas pipelines under new Schedule No. G-FIG. The new service would establish tariff rates, terms and conditions providing Carriers the option to request SCG/SDG&E to install conduit within its active gas pipelines using a proposed “fiber-in-gas” or “FIG” technology. The project as presented in this document is programmatic or conceptual in nature as a new tariff



SCG/SDG&E Schedule No. G-FIG "Fiber Optic Cable in Gas Pipelines" / 202131-004 ■

SOURCE: Sempra Energy

Figure 2-1**Southern California Gas Company and San Diego Gas & Electric's Service Territories**

Cities Served

Southern California Gas Company*

Anaheim	Norwalk
Arcadia	Ontario
Bakersfield	Orange
Blythe	Oxnard
Carson	Palmdale
Culver City	Palm Springs
El Centro	Panorama City
El Monte	Pasadena
Encino	Paso Robles
Fullerton	Pomona
Garden Grove	Porterville
Gardena	Redondo Beach
Glendale	Riverside
Granada Hills	San Bernardino
Hanford	Santa Ana
Hemet	Santa Barbara
Huntington Beach	Santa Clarita
Indio	Santa Monica
Inglewood	Santa Paula
Irvine	Sherman Oaks
Irwindale	Simi Valley
La Verne	Temecula
Lancaster	Thousand Oaks
Lompoc	Torrance
Los Angeles	Upland
Montebello	Van Nuys
Moreno Valley	Ventura
Needles	Visalia
	Whittier

San Diego Gas & Electric

Carlsbad	Lemon Grove
Chula Vista	National City
Coronado	Oceanside
Del Mar	Poway
El Cajon	San Diego
Encinitas	San Marcos
Escondido	Santee
Imperial Beach	Solana Beach
La Mesa	Vista

Common Cities Served by Both

Dana Point
Laguna Beach
Laguna Hills
Laguna Niguel
Mission Viejo
San Clemente
San Juan Capistrano

Total Service Territory - 27,100 square miles
Total Customers - 6 million
Total Population Served - 21 million

* Only major cities listed

SCG/SDG&E Schedule No. G-FIG "Fiber Optic Cable in Gas Pipelines" / 202131-004 ■

SOURCE: Sempra Energy

Figure 2-2

Cities Served by Southern California Gas Company and San Diego Gas & Electric

service and FIG technology are proposed for use within SCG/SDG&E's service territories, but no specific location or action is identified in this project.

If requested to do so by a Carrier, SCG/SDG&E would place conduit into their pipeline(s) using a FIG technology. Fiber-in-gas technologies provided by Carriers would be required to meet a series of stringent tests designed to ensure that only high quality components, installation crews, and installation procedures are permitted on the SCG/SDG&E pipeline system(s).

Although construction impacts from installation in SCG/SDG&E existing pipelines would result, the impacts would be much less significant than trenching and installing an entirely new stand-alone conduit system. The proposed project would minimize the space required for additional utility infrastructure, as well as, reduce the amount and time of construction activity required.

DESCRIPTIONS OF THE NEW SERVICE

SCG/SDG&E would make available natural gas pipelines no less than four inches diameter that operate at medium or low pressure (60 psi or lower) upon request by a Carrier for this service for placement of conduit utilizing FIG technology. Only conduit of a diameter of less than one inch will be placed in any pipeline to accommodate fiber optic cable. Under this service, SCG/SDG&E would install and own all facilities necessary to place fiber optic cable in their pipelines except for the handhole structure, including conduit and required fittings, using a FIG technology tested and approved to meet SCG/SDG&E's criteria. SCG/SDG&E would not install the fiber optic cable itself, but would install only the conduit in the active gas lines to house (or accommodate) the fiber optic cable.

SCG/SDG&E is not requesting to provide telecommunications services, therefore, the fiber optic cable would be owned by the Carrier for whom the conduit is installed. The Carrier would be responsible for installing the fiber optic cable within the conduit and constructing the handholes for installation and future access to its cable system. SCG/SDG&E would, however, have trained pipeline inspectors present during the installation of the Carrier's fiber optic cable once the conduit has been fully installed within the gas pipeline.

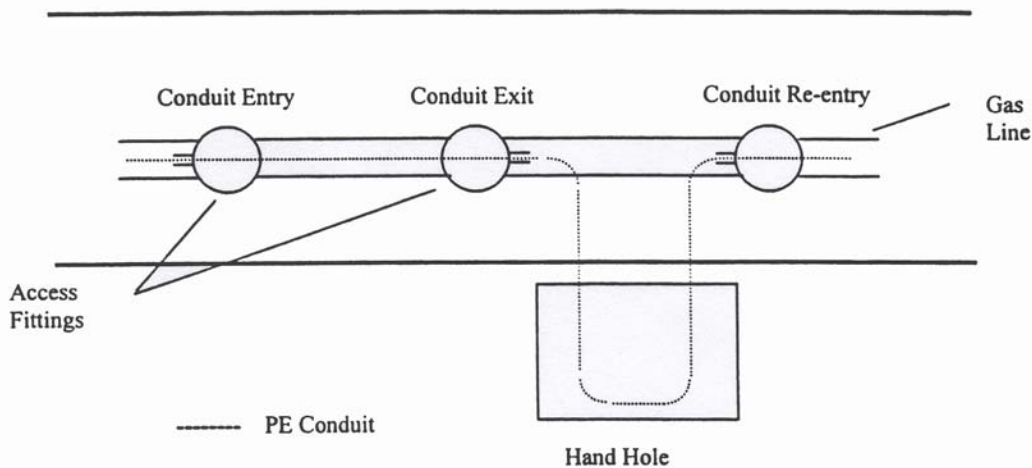
By offering this proposed new service, SCG/SDG&E would make available an additional, competitive option for routing fiber optic cable that would have significantly reduced impacts on the environment and public, especially in densely populated metropolitan areas. In addition, it would be beneficial for consumers of services delivered through the use of fiber optic cable by potentially reducing the cost of providing those services. Reducing this cost would contribute to the availability of services to the public, thus promoting the access of greater numbers of the public and institutions serving the public to the internet and other services delivered over fiber optic cable.

FIBER IN GAS TECHNOLOGY

SCG/SDG&E performed an evaluation of the components of a FIG procedure developed by Sempra Fiber Links (SFL) (currently the only domestic technology of its type available in the U.S.) to determine its safety and durability as permanent attachments to gas carrying pipelines.

Testing performed by SCG/SDG&E was conducted to ensure the FIG procedure conforms to all applicable regulations including those mandated by the CPUC Safety Branch, the Department of Transportation (DOT) Office of Pipeline Safety, SCG/SDG&E Company procedures, and other applicable federal regulations. The results of the tests and studies conducted on the SFL FIG procedure assisted SCG/SDG&E to develop a criteria to accept a FIG technology for insertion of conduit inside live natural gas pipelines.

With the SFL FIG technology, installers insert a polyethylene (PE) inner conduit into the gas pipelines through gas-tight packing seals, without any depressurization of the pipe at any time. Installers use well-proven procedures (used for many years by the gas utilities industry) for entering and tapping the live gas lines. The conduit, which carries the fiber-optic cable, is extracted with specialized, patent-pending tools at a pre-determined exit point, and entering and exiting ends of the conduit are sealed with standard, certified fittings. A smaller-diameter conduit can also be installed into service lines upstream of the meter through special fittings. The SFL FIG Technology tested by SCG/SDG&E uses procedures and equipment already in use in the gas distribution industry to install conduit; the fittings are approved modifications of standard fittings already used in the industry. The conduit installation process developed by SFL and analyzed in this document is further explained below. The process is schematically depicted in **Figure 2-3**.



SOURCE: Sempra Fiber Links

Figure 2-3
Sempra Fiber Link FIG Technology Schematic Drawing

CONDUIT INSTALLATION

The conduit installed in the gas pipeline would be used to house an optical cable later installed by a Carrier. Conduit assists in shielding the optical cable from hydrocarbons commonly found in natural gas pipelines eliminating the issue of cable material compatibility in a natural gas environment. Isolation of optical cable from direct gas exposure also facilitates future maintenance of the fiber without requiring the gas utility's direct involvement. Furthermore,

housing the optical cable in conduit simplifies the installation of that cable by allowing the use of existing air jetting technologies.

Once the conduit exits the pipeline, it would be fed into a nearby hand hole provided by the Carrier. The Carrier would not notice any physical differences between installation of fiber optic cable in conduit installed in active gas lines or conduit installed independently underground.

To install the conduit within the live gas lines, a standard hot tap procedure is used. The hot tap procedure used for FIG installation is the same procedure performed routinely throughout the gas industry as a means of tapping into a live gas line to establish a service line, etc. Specific instructions for hot tap procedures have been developed internally at SCG/SDGE, and approved by personnel with expertise in this specific technical area for implementation. One of the important features of the technology is that the system is simply a modification of various fittings already approved for use by SCG/SDG&E and others throughout the gas pipeline industry. One slight modification to the hot tap fitting used for FIG is a transparent flange with embedded specialty tools to allow observations inside the pipe for conduit navigation to exit the pipeline. The modified fittings and seals are designed to meet all gas pipeline safety requirements of the U.S. DOT, CFR 49, Section 192 and any local regulations such as California PUC General Order 112-E.

For FIG installation, hot tap fittings with modified side arms (similar to 4" hot-tap fittings) are attached to a live gas line at the desired insertion location to tap a hole into the pipe. Once the pipeline has been tapped allowing access inside the pipe, the conduit is prepared for insertion. The installation of the various fittings is a standard procedure, commonly performed by SCG/SDG&E employees and contractors for service line installations.

After the modified hot tap fittings are attached to create an entry and exit point, conduit is inserted at one end (entry) of the pipeline segment with a mechanical tractor-feeder and extracted at the other end (exit) with the specially designed retrieval tools. The specialty tools are used to grab hold of the threaded conduit. Using the specialty tools through the transparent flange, the fitting on the end of the tool is connected to the conduit end fitting, whereby the conduit can be push/pulled through the exit fitting on the main pipeline.

Once the conduit is installed and sealed to the pipeline, a bridging section of conduit (also referred to as "bridging conduit") is attached where the conduit is sealed to the pipe and routed to a handhole location. A sealing mechanism composed primarily of Teflon® packing, industry standard nuts to secure the fittings (including a gland nut, shield nut and compression nut), and specially designed service adapters are used to ensure pressure tightness between the pipeline and conduit at the entry and exit points. Once the seal is installed, the fitting would be permanent.

VERIFICATION / TESTING FOR CONDUIT CONTINUITY

Following installation of the conduit in the pipeline and the bridging conduit to the handhole, the conduit would be pressurized to 100 psi, and monitored for pressure degradation in order to check for leaks on the conduit system. These tests are designed to ensure that the access fitting can maintain a permanent gas seal at critical contact areas. The pressure tests would ensure that the

conduit system is leak free after its installation and prior to fiber optic cable installation. A similar pressure test may also be conducted after the fiber optic cable is inserted into the conduit.

No specific regulations are developed for this pressure testing. SCG/SDG&E would perform testing at 100 psi to ensure the integrity of the conduit itself, and to ensure no leaks in the conduit segment exist. The minimum test pressure required is 100 psi. The maximum test pressure for conduit is not to exceed 140 psi. See **Table 2-1** for the minimum required test duration.

**TABLE 2-1
MINIMUM REQUIRED TEST DURATION**

Conduit Size (inches)	Installed Length (feet)	Minimum Test Duration (minutes)
1/2 to 1	500 ft. or less	5 minutes
	over 500 ft.	0.01 min./ft. x total footage

The medium most likely used for pressure testing the conduit is nitrogen. It is an inert gas that presents no risks when venting to atmosphere or if mixed with natural gas. However, the test medium may be air, natural gas, or nitrogen.

FIG-RELATED CONSTRUCTION

Entry or exit of the gas pipeline is required for two basic reasons: (1) to provide a customer connection access point, and (2) to circumvent a pipeline obstruction, e.g., a valve. In order to enter or exit the pipeline, a hole approximately 12 feet by 4 feet is excavated at each end of the pipeline segment. Normal construction equipment consists of two pickup trucks, a backhoe, one material hauling truck (five-ton), and one cement truck. Approximately, two entries and two exits can be typically accomplished in 8 hours. Lengths in excess of 950 feet have been installed in pilot programs using FIG procedures in a single insertion, with two insertions each day.

Excavations will typically be spaced from 500 to 1,500 feet apart, which unlike trench installation, allows use of all but small portions of the street. The underground construction activities would typically occur in selected city streets and could normally avoid heavily traveled streets or roads. If necessary, a Traffic Control Plan would be developed, consistent with the requirements of the affected jurisdiction, to avoid unnecessary traffic congestion for conduit entry and exit points within public street rights-of-way. Due to pressure control requirements during any FIG installation process, only SCG/SDG&E employees and trained and certified SCG/SDG&E contractors qualified to work on natural gas pipelines would be permitted to perform installations of fittings and conduit.

After the conduit is routed to a handhole located on the road shoulder/parkway or sidewalk, it is capped until a fiber optic cable is installed by the Carrier using traditional air-blowing or “jetting” techniques. This jetting technique uses special equipment to blow air through the conduit while a mechanical tractor-feeder pushes the cable into the same conduit. After the cable is installed, a

gas-tight seal is installed between the bridging conduit and cable. This seal is a “secondary” safety precaution to prevent gas from entering the handhole if the pipeline and conduit is cut in the street.

No more safety risk is involved for the Carrier during fiber jetting activities than is involved in normal leak repairs. An SCG/SDG&E inspector would be present during all Carrier installation activities to ensure all appropriate gas handling procedures would be followed.

The same precautions required while working around natural gas pipelines would be taken during the jetting process. The highest safety risk for the Carrier during fiber jetting activities would be the creation of static electricity. Precautions would be taken to avoid or reduce this risk by grounding all equipment used at the excavation and/or soaking the pipe and cable with soapy water to create a ground. The other risks associated with the jetting process would occur only if the conduit was damaged and a gas leak occurs. In this case, SCG/SDG&E would be called out to control the leak. This is the same SCG/SDG&E procedure currently followed when third party damage incidents occur on its pipelines.

C. FACILITY OPERATION AND MAINTENANCE

From an operations and maintenance perspective, the results of the demonstrations and tests conducted to date show that the FIG procedure presents risk levels comparable to those associated with current natural gas operations. Company procedures would be updated to address the maintenance of distribution pipelines serving as fiber optic cable carriers.

SCG/SDG&E’s primary responsibility during an emergency is to minimize the hazard resulting from a damaged pipeline. Therefore, SCG/SDG&E employees may have to perform tasks during emergency situations that may result in damage of the conduit and or cable. However, existing procedures would be modified to minimize the damage to FIG conduit and cable. An estimated twenty-seven current procedures would need to be modified to accommodate this new technology.

Schedule No. G-FIG’s Special Conditions include the following key points related to future modifications required on SCG/SDG&E’s pipelines:

- If actual future local growth creates the need to add capacity to the particular pipeline segment(s) occupied by the fiber optic cable at any time one or more years after the effective date of the contract, SCG/SDG&E will promptly notify the Carrier and provide the company with an estimate of the least cost method of adding needed additional capacity. The amount of additional capacity needed will be determined by employing standard utility planning procedures that consider cost efficiency and effectiveness. The Carrier would have the option of: (1) paying the proportionate share of the incremental costs of adding the needed capacity in the most effective manner, or (2) removing the conduit from the pipeline.
- If SCG/SDG&E is lawfully required by any third party to relocate its pipeline containing the Carrier’s fiber optic cable, or if the SCG/SDG&E needs to replace its pipeline containing the

Carrier's fiber optic cable for operating reasons beyond the reasonable control of the SCG/SDG&E (including the need to install a pipeline with increased capacity to meet gas demand), then SCG/SDG&E may inform the Carrier of termination of service for the affected segment.

D. REGULATORY ENVIRONMENT

FIG installation may be subject to local city, county, and special district permits, such as encroachment permits, grading permits and air district permits. In addition, several state and federal regulatory permits would potentially be required. The permits of broadest possible application to the proposed project and the requirements are briefly described below.

- County or city codes typically require a local land use or encroachment permit prior to ground-disturbance within, or interruption of, public rights-of-way. This permit is primarily issued through the local planning department.
- County or city codes typically require a grading permit prior to the commencement of grading activities within the local jurisdiction. This permit is primarily issued through the local public works department. Best management practices (BMPs) for sediment and erosion controls are often required.
- Air quality management districts are responsible for the development and enforcement of regulations for the control of air pollution within their jurisdiction. Air quality permits are issued for facilities and construction activities that are regulated by the applicable air district.
- Section 404 of the CWA requires the issuance of an individual or nationwide permit from the U.S. Army Corps of Engineers before discharging backfill into the waters of the United States, including wetlands. For the proposed project, Nationwide Permit No. 12 for discharges associated with excavation, backfilling, or bedding of utility lines is applicable.
- Section 401 of the Clean Water Act (CWA) requires a water quality certification to be obtained from the applicable regional water quality control board (RWQCB) for discharge activities that may affect water quality. The permit establishes measures to ensure water quality protection and is a required prerequisite for issuance of a Nationwide Permit No. 12.
- Section 402 of the CWA requires that a National Pollution Discharge Elimination System (NPDES) certification be obtained from the applicable regional water quality control board (RWQCB) before construction of a project that may result in five acres or more of soil disturbance. A storm water pollution prevention plan (SWPPP) containing erosion control measures is required. EPA will issue a new general permit in December 2002 for activities that disturb between one and five acres. The appropriate RWQCB enforces the general permit.
- Section 7 of the Federal Endangered Species Act (ESA) requires consultation with the U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS)

regarding measures to avoid harm to plant, fish, and wildlife species that are federally listed as threatened or endangered species for all federal projects. In addition, Section 7 prohibits federal agencies from implementing an action that would result in the “take” of a species listed as threatened (if not subject to a special rule) or endangered, or adversely affect critical habitat unless a biological opinion (BO), issued upon completion of formal consultation, authorizes the action. “Take” includes the action of, or attempt to, harm, harass, and kill an individual of a species. Section 7 requires and establishes protocols for preconstruction wildlife surveys and mitigation measures.

- Section 10 of the ESA authorizes the conditions for USFWS or NMFS to issue an incidental take permit when a nonfederal project may result in take that is incidental to, and not the purpose of, the implementation of an otherwise lawful activity. The permit requires preparation and implementation of a habitat conservation plan that would offset the take of individuals which may occur as an incidental effect of the project by providing for the overall preservation of their species through specific mitigation measures.
- Section 106 of the National Historic Preservation Act (NHPA) requires examination of cultural resources before various federal agencies can provide permits under their jurisdiction. Section 106 establishes requirements and protocols for pre-construction cultural resource surveys and mitigation of impacts on cultural resources.
- Section 1603 of California Fish and Game Code requires a streambed alteration agreement from the California Department of Fish and Game (DFG) before any action is taken that would obstruct or divert the flow or alter the channel of designated drainages, rivers, streams, and lakes. Potential impacts must be mitigated.
- Section 2081(b) of the DFG Code requires the issuance of an incidental-take permit before any public or private action may be performed that would potentially hunt, pursue, catch, capture, or kill (take) a state-listed endangered or threatened species. The permit requires that the impacts of the take are minimized and fully mitigated, that the take is consistent with DFG recovery programs, that funding for mitigation and monitoring programs is adequately assured, and that the action would not jeopardize continued existence of the species.

E. QUARTERLY REPORTING

SCG/SDG&E will file a quarterly report, which summarizes those FIG installation activities (projects) that occurred during the previous quarter and also identify those activities intended for construction in the coming quarter. The report will contain a description of the project(s) and its location(s), and a summary of SCG/SDG&E’s compliance with this Mitigated Negative Declaration. The report shall be filed as an informational advice letter with the Commissions’ Telecommunication Division so that SCG/SDG&E compliance with the Mitigation Measures are monitored and documented.

In order to ensure that the Mitigation Measures are fulfilled, the Commission will make periodic reviews of the projects listed in quarterly reports. The Commission may review any projects at its

discretion including follow-up with the local jurisdictions to determine that all applicable Mitigation Measures are addressed.

The Quarterly Report shall include the following contents for projects completed within the preceding quarter:

- Number of FIG installation projects
- Location / Miles of conduit installation
- Construction start and completion dates for each project
- Compliance demonstration
 - a list of permits acquired for each project, where applicable
 - coordination or letters to responsible agencies for each project, where applicable
- Number of violations or citations issued during project implementation
- Proposed projects for the following quarter
 - location
 - tentative construction schedule
 - permit acquisition requirements